

**APPLICANT ARGUMENTS/REMARKS**

Applicant has carefully reviewed and considered the Non-Final Office Action mailed on November 16, 2007, and the references cited therewith. This first reply is being filed within three months of the mailing date of the Non-Final Office Action.

Applicant has amended claims 3, 4, 13, 14, 15, 23-24, and 34-39, each to remove a redundant phrase such as “and wherein the electrolyte layer comprises LiPON” which in each case is already recited earlier in the claim or in a claim from which the affected claim depends. No new matter is added.

The amendment to claim 33 is supported by previous claim 72, which is supported as described in the response filed October 17, 2006, where that claim was added.

New claims 73 to 114 have been added to further describe the claimed invention. No new matter is added. Applicant respectfully submits that the new claims incorporate the subject matter that the Examiner indicated as allowable in claim 72 in his Office Action of November 16, 2007.

These new claims are supported as follows.

Claim 73 is supported by previous claim 68, which is supported as described in the response filed October 17, 2006, where claim 68 was added.

Claim 74 is supported by previous claim 69, which is supported as described in the response filed October 17, 2006, where that claim was added.

Claim 75 is supported by previous claim 70, which is supported as described in the response filed October 17, 2006, where that claim was added.

Claim 76 is supported by original claim 2.

Claim 77 is supported by original claim 4.

Claim 78 is supported by original claim 5.

Claim 79 is supported by original claim 6.

Claim 80 is supported by original claim 7.

Claim 81 is supported by original claim 8.

Claim 82 is supported by original claim 9.

Claim 83 is supported by original claim 10.

Claim 84 is supported by previous claim 42, which is supported as described in the response filed September 1, 2006, where that claim was added.

Claim 85, which depends from claim 3, is supported by previous claim 72, which is supported as described in the response filed October 17, 2006, where that claim was added.

Claim 86, which depends from method claim 11, is supported by previous claim 72, which is supported as described in the response filed October 17, 2006, where that claim was added.

Claim 87 is supported by original claim 12.

Claim 88 is supported by original claim 13.

Claim 89 is supported by original claim 14.

Claim 90 is supported by original claim 15.

Claim 91 is supported by previously presented claim 16.

Claim 92 is supported by original claim 17.

Claim 93 is supported by original claim 18.

Claim 94 is supported by original claim 19.

Claim 95 is supported by original claim 20.

Claim 96 is supported by original claim 21 (after correction of “apparatus” to “method”).

Claim 97, which depends from claim 22, is supported by previous claim 72, which is supported as described in the response filed October 17, 2006, where that claim was added.

Claim 98 is supported by original claim 23.

Claim 99 is supported by original claim 24.

Claim 100 is supported by original claim 25.

Claim 101 is supported by original claim 26.

Claim 102 is supported by original claim 27.

Claim 103 is supported by original claim 28.

Claim 104 is supported by original claim 29.

Claim 105 is supported by original claim 30.

Claim 106 is supported by original claim 32.

Claim 107 is supported by previous claim 34, which is supported by original claim 23 as described in the response filed September 27, 2004, when claim 34 was added.

Claim 108 is supported by previous claim 35, which is supported by original claim 23 as described in the response filed September 27, 2004, when claim 35 was added.

Claim 109 is supported by previous claim 36, which is supported by original claim 23 as described in the response filed September 27, 2004, when claim 36 was added.

Claim 110 is supported by previous claim 37, which is supported by original claim 23 as described in the response filed September 27, 2004, when claim 37 was added.

Claim 111 is supported by previous claim 38, which is supported by original claim 23 as described in the response filed September 27, 2004, when claim 38 was added.

Claim 112 is supported by previous claim 39, which is supported by original claim 23 as described in the response filed September 27, 2004, when claim 39 was added.

Claim 113, which depends from claim 31, is supported by previous claim 72, which is supported as described in the response filed October 17, 2006, where that claim was added.

Claim 114 is supported by previous claim 40, which is supported in the response filed September 27, 2004, where that claim was added, and by element 2650 in Figure 26A and paragraph [0276] in the present application as published (US 2002 0037756).

The total number of claims is increased by 42 claims and independent claims have not increased. Please charge any additional required fees, or credit overpayment to Deposit Account No. 502931.

Applicant notes that there is evidently a typographical error in of the Non-Final Office Action mailed on November 16, 2007, which gives no disposition for pending claim 71. The Office Action says on page 2:

***Specification***

Claim 67 is objected to because it is dependent on withdrawn claim 67.

Appropriate correction is required.

Applicant assumes that the Examiner meant that claim 71 was objected to. Claim 71 was not indicated as withdrawn by the Examiner. Accordingly, Applicant respectfully requests that the

Examiner include a first examination of claim 71 with the next Office Action. Claim 71 (which includes all the limitations of claim 1 and is a dependent claim on claim 67) provides a linking claim between the original claimed invention and claim 67, because claims 71 and 72 are linking claims to each other, thus linking the entire set of claims under independent claims 43 and 67 to claims 1-42. Accordingly, Applicant respectfully requests that upon allowance of rewritten claim 72, withdrawn claims 43-71 be reconsidered. The November 16, 2007 Office Action partially addressed Applicant's request, in the September 17, 2007 Response filed to the June 29, 2007 Office Action, for an examination of claims 71 and 72 with the next Office Action. **In the body of the November 16, 2007 Office Action, claim 72 is indicated to be allowable if rewritten in independent form, but claim 71 is not addressed.** Applicant assumes that the Examiner may consider claim 71 as withdrawn since it depends from withdrawn claim 67, and thus Applicant has marked it as withdrawn. Nonetheless, Applicant requests examination of claim 71.

Also, Applicant respectfully requests that the Examiner address the arguments of the Applicant's September 17, 2007 Response (which arguments are repeated below) for all claims except claim 72.

### ***Claim Rejections – 35 USC § 103***

Regarding the June 29, 2007, and the November 16, 2007, Office Actions: claims 1, 2, 5-9, 11, 12, 16-20, 22, 23, and 26 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Tuttle et al. (U.S. Patent No. 6,078,791; hereinafter "*Tuttle*") in a view to Bates et al. (U.S. Patent No. 5,561,004; hereinafter "*Bates '004*"). Applicants respectfully traverse.

Regarding claims 1 and 11, the Examiner admits that *Tuttle* does not teach a first conductive layer deposited on the support structure and a thin film battery deposited as successive thin film depositions over at least a portion of the first conductive layer wherein the electrolyte layer includes LiPON. *Bates '004* describes making a battery as successive thin-film layers, but does not add other electronics or functions. *Tuttle* describes taking an already-made battery (sometimes described by *Tuttle* as a thin film battery) and laminates or glues it in place. Combining the battery of *Bates '004* with *Tuttle* would simply provide the thin film battery of *Bates '004* to be glued or laminated in the device of *Tuttle*. There is no motivation in the cited references to modify or change them.

It is impermissible to use the present application as a template to pick and choose selected features of *Bates '004* (i.e., successive deposition of thin-film battery layers on a support structure (substrate) and an antenna and electronic communications circuit mounted to the support structure that the battery layers were deposited onto) into *Tuttle* in place of what *Tuttle* already does (i.e., to laminate or glue an already-built thin-film battery in place on the substrate with antenna). *Bates '004* describes making a thin-film battery. *Tuttle* takes an already-made battery and laminates or glues it into this device. There is nothing in *Tuttle* that describes or suggests depositing the battery as thin-film layers on to the substrate. There is nothing in *Bates '004* that describes or suggests mounting an antenna on to the substrate to which the battery was deposited as successive thin film layers. In contrast, for example, the disclosure of the present invention for the first time describes and claim 1 recites a combined battery and wireless-communications apparatus comprising: a flexible support structure; a first conductive layer deposited on a first surface area of the support structure; a thin-film battery deposited as successive thin-film depositions over at least a portion of the first conductive layer, the battery comprising a cathode layer; a solid-state electrolyte layer, and an anode layer deposited such that either the anode layer or the cathode layer is in electrical contact with the first conductive layer, and the electrolyte layer in contact with and completely separating the anode layer and the cathode layer, wherein the electrolyte layer includes LiPON; an antenna mounted to the support structure; and an electronic communications circuit mounted to the support structure and electrically coupled to the battery and the antenna to transceive radio communications. Accordingly, reconsideration and withdrawal of the rejection of claims 1 and 11 and an early indication of allowance are respectfully requested.

Regarding claims 2 and 12 with respect to claims 1 and 11, these claims must be considered as a whole, including the base limitations of the independent claims, and appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 2 and 12 and an early indication of allowance are respectfully requested.

Regarding claims 5 and 16 with respect to claim 1 and 11, the Examiner argues that since *Tuttle* describes a flexible substrate that it is inherent that the flexible support member would inherently bend to match a curved shape. Applicants respectfully traverse. The reference says the support member can be flexible, not that the resulting structure is or could be curved with the battery on the concave face. The battery and IC of *Tuttle* is shown as a flat planar structure. The

present claims 5 and 16 recite “a curved shape having a convex face and an opposing concave face, and the battery is curved and located on the concave face.” Further, these claims must be considered as a whole, including the base limitations of the independent claims, and also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 5 and 16 and an early indication of allowance are respectfully requested.

Regarding claims 6-8 and 17-19 with respect to claims 1 and 11, the Examiner merely states “Tuttle teaches the antenna is within the integrated circuit, or position adjacent to the IC on the thin support member, column 4, lines 5-14, in the form of a dipole or loop antenna typically screen printed on the upper surface of the base support layer, column 7, line 31-38 and column 6, lines 35-50. Tuttle further teaches the outer surfaces of two batteries may also serve as a bow tie antenna, column 10, lines 25-36 where this alternative battery/ antenna structure teaches a plurality methods to selectively position and deposit or screen ink the conductive pattern of the antenna consistent with the packaging design and manufacturing method” but makes no argument showing that Applicant’s invention is obvious. Applicants respectfully traverse. Regarding claims 6 and 17, *Tuttle* says the antenna could be formed from the entire outer surfaces of two batteries 142 and 144 serve as the “bow tie” antenna structure for the enclosed transceiver, (these are not “antenna is a thin-film trace deposited on the battery”). It is impermissible for the Examiner to use hindsight gained from the present invention to extend *Tuttle*’s ephemeral alternatives that do not even say place the antenna on the battery to include the recited combinations of claims 6 and 17 including the limitations of the independent claims 1 and 11. Regarding claims 7 and 18, *Tuttle* Figures show the antenna around the outside of the IC, not on it, and column 4 line 8 says the “antenna [is] incorporated **within** the IC or positioned adjacent to the IC”. (Emphasis added) This does not meet the claimed recitation “antenna is a thin-film trace deposited on the electronic communications circuit.” Regarding claims 6-8 and 17-19, these claims must be considered as a whole, including the base limitations of the independent claims, and appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 6-8 and 17-19 and an early indication of allowance are respectfully requested.

Regarding claims 9 and 20 with respect to claims 1 and 11, the Examiner argues that Figure 9 of *Tuttle* somehow teaches recharging “the battery.” Applicants respectfully traverse. *Tuttle* describes only a capacitor that is periodically charged by conventional RF charging circuits. *Tuttle*

does not even mention or suggest a rechargeable battery. *Tuttle* describes a “passive or battery-less device environment, since it contains no battery therein” (*Tuttle* column 10, line 43) “wherein the battery has been altogether eliminated” (*Tuttle* column 10, lines 39-40). **Thus, this description of charging a capacitor is an alternative to providing a battery.** *Tuttle* does not teach or suggest recharging the battery since this capacitor charge is not a charge on a battery and since there is no battery in the *Tuttle* “**battery-less device environment**”. Applicant respectfully submits that the Examiner is incorrect in stating that a charge on a capacitor is a “battery” since *Tuttle* says “battery-less device environment”. Further, these claims must be considered as a whole, including the base limitations of the independent claims, and also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 9 and 20 and an early indication of allowance are respectfully requested.

Regarding claims 22 and 26, the Examiner makes essentially the same argument as in the prior paragraph regarding claims 9 and 20. Applicant’s argument is also the same as in the above paragraph (please see above). Accordingly, reconsideration and withdrawal of the rejection of claims 22 and 26 and an early indication of allowance are respectfully requested.

Regarding claim 23 with respect to claim 22, this claim must be considered as a whole, including the base limitations of the independent claim, and appears to be allowable for the reasons argued above for the independent claim 22. Accordingly, reconsideration and withdrawal of the rejection of claim 23 and an early indication of allowance are respectfully requested.

Regarding the June 29, 2007, and the November 16, 2007, Office Actions: claims 10, 21, and 25 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over *Tuttle* and *Bates ’004* and further in view of *Little* (U.S. Patent No. 4,740,431, hereinafter “*Little*”). Applicants respectfully traverse.

Regarding claims 10, 21 and 25 with respect to claims 1, 11 and 22, *Tuttle* does not teach a rechargeable battery, as pointed out above. Further, these claims must be considered as a whole, including the base limitations of the independent claims, and also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 10, 21 and 25 and an early indication of allowance are respectfully requested.

Regarding the June 29, 2007, Office Action; claims 3, 4, 13-15, 24, 34-39, and 42 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over *Tuttle* and *Bates '004* and further in view of *Bates* (U.S. Patent No. 5,569,520; hereinafter "*Bates '520*"). Applicants respectfully traverse.

Regarding claim 3, this claim must be considered as a whole, and appears to be allowable for the reasons argued above for the independent claim 1, in addition to the claim 3 limitation that the cathode comprises a lithium intercalation material. Accordingly, reconsideration and withdrawal of the rejection of claim 3 and an early indication of allowance are respectfully requested.

Regarding claims 4, 13-14, 24, 35, and 37-39 with respect to claims 1, 11, 22 and 33, these claims must be considered as a whole, including the base limitations of the independent claims, and appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 4, 13-14, 24, 35, and 37-39 and an early indication of allowance are respectfully requested.

Regarding claims 15, 34, and 36 with respect to claims 11 and 22, Applicant respectfully submits the cited references do not teach or suggest the anode layer comprising a lithium intercalation material, depositing the anode including an intercalation material, or both the anode and the cathode comprise an intercalation material, as claimed in the present invention. Further, these claims must be considered as a whole, including the base limitations of the independent claims, and also appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 15, 34, and 36 and an early indication of allowance are respectfully requested.

Regarding claim 42 with respect to claim 1, the claimed invention electrolyte layer has a thickness of less than 1000 Angstroms (1000 Angstroms is equivalent to 0.1  $\mu\text{m}$ ). The *Bates '520* electrolyte film of about 1  $\mu\text{m}$  is an order of magnitude greater than that (0.1  $\mu\text{m}$ ) of the claimed invention. Further, this claim must be considered as a whole, including the base limitations of the independent claim, and also appears to be allowable for the reasons argued above for the independent claim. Accordingly, reconsideration and withdrawal of the rejection of claim 42 and an early indication of allowance are respectfully requested.



Regarding the June 29, 2007, and the November 16, 2007, Office Actions; claims 27-30 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over *Tuttle* and *Bates '004* and further in view of *Lew et al.* (U.S. Patent No. 6,608,464, hereinafter "*Lew*"). Applicants respectfully traverse.

Regarding claims 27 and 29 with respect to claim 22, these claims must be considered as a whole, including the base limitations of the independent claims, and appear to be allowable for the reasons argued above for the independent claim 22. Accordingly, reconsideration and withdrawal of the rejection of claims 27 and 29 and an early indication of allowance are respectfully requested.

Regarding claims 28 and 30 with respect to claim 22, the Examiner argues that since *Lew* teaches the idea of a variety of sources, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply any other suitable power source to *Tuttle* modified to ensure the device has available power to operate. The Examiner provides no reference to an acoustic transducer, but instead only states that *Lew* teaches a variety of sources. Applicants respectfully traverse. Applicants respectfully request under **MPEP 2144.03** that the Examiner **provide a reference** in support of this rejection. Without such a showing for a *prima facie* case of obviousness, the claims appear to be in condition for allowance. Additionally, claims 28 and 30 must be considered as a whole, including the base limitations of the independent claims, and additionally they appear to be allowable for the reasons argued above for the independent claims. Accordingly, reconsideration and withdrawal of the rejection of claims 28 and 30 and an early indication of allowance is respectfully requested.

Regarding the June 29, 2007, and the November 16, 2007, Office Actions; claims 31, 32 and 40 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over *Bates '004* in view of *Little* and *Bates '520*. Applicants respectfully traverse.

Regarding claim 31, *Bates '520* merely states that "cells of like construction, are believed to be well-suited for use in applications requiring moderate amounts of power. Such applications would include cellular telephones, remote telephones, laptop computers, **hearing aids** and cardiac pacemakers." There is no teaching or suggestion in *Bates '520* (or the other cited references) that the hearing aid circuit is mounted to the substrate onto which the thin-film battery was **deposited as a series of thin film depositions**. Accordingly, the cited references do not show or suggest all of

the limitations of the present invention recited in claim 31. Reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claim 32, which depends from claim 22 (claim 32 does not depend from claim 31, as indicated by the Examiner), none of cited references of *Bates '004*, *Little*, or *Bates '520* disclose an electronic communications circuit including an antenna mounted to the support structure, which was included as a limitation of claim 22. All limitations of the claim as a whole must be considered for a *prima facie* case of obviousness. Further, the solar cell disclosure of *Little* teaches away from an implantable apparatus, since a solar cell is of very little benefit as an energy-receiving device mounted to the support structure for an implantable medical device (which would be inside the body and thus shielded from the light the solar cell needs. Accordingly, reconsideration and withdrawal of the rejection of claim 32 and an early indication of allowance are respectfully requested.

Regarding claim 40, this claim must be considered as a whole, and appears to be allowable for the reasons argued above for the independent claim 31. Accordingly, reconsideration and withdrawal of the rejection of claim 40 and an early indication of allowance are respectfully requested.

Regarding the June 29, 2007, and the November 16, 2007, Office Actions: claims 33 and 41 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over *Bates '004* in view of *Little*. Applicants have amended claim 33 to overcome the rejection.

Regarding claim 33, *Bates '004* states that their “protective shield 30 overlies and covers the entire surface area of the battery films 26 and 28 which would otherwise be left exposed to the atmosphere. In addition, the shield 30 is advantageous in that it acts as an impermeable barrier through which air (or its gaseous constituents) and water vapor cannot penetrate. Such an advantage can be readily appreciated in connection with the component films, i.e. the electrolyte film 26 and the anode film 28, which include an amount of lithium which, as mentioned earlier, is highly reactive to atmospheric elements.” Applicants respectfully submit that there is no teaching or suggestion in *Little* or *Bates '004* (or the other cited references) that the electronic timepiece circuit forms a device that is affixed to said thin-film battery via the protective coating, and electrically coupled to the thin-film battery through a conductor external to the thin-film battery and to the

device; and wherein the apparatus further includes an encapsulant to encapsulate the device and external conductor. Accordingly, the cited references do not show or suggest all of the limitations of the present invention of claim 33. Reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claim 41, this claim must be considered as a whole, and appears to be allowable for the reasons argued above for the independent claim 33. Accordingly, reconsideration and withdrawal of the rejection of claim 41 and an early indication of allowance are respectfully requested.

**Previously added claim 71 not addressed in the Office Action**

Applicant had previously added dependent claim 72 and dependent claim 71 to more fully describe the invention in the claims added on October 17, 2006. The Examiner has indicated that claim 72 was allowable if rewritten as independent. Again, Applicant respectfully submits that claims 71 and 72 are linking claims to each other, and requests that upon allowance of claim 72, withdrawn claims 43-70 and 71 be reconsidered. Applicant respectfully submits that all the claims are related to different details or aspects of substantially the same invention, i.e., a unitary packaged thin-film battery **deposited as successive thin-film depositions** and the electronic device powered by the battery, and reconsideration and allowance of all the claims are respectfully requested.

Serial Number: 09/815,854

Attorney Docket: 1327.011US1

Filing Date: March 23, 2001

Title: BATTERY-OPERATED WIRELESS-COMMUNICATION APPARATUS AND METHOD

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**CONCLUSION**

Applicant respectfully submits that claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Charles A. Lemaire (952-435-0201) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account Number 502931.

Respectfully submitted,

HARLAN T. JACOBS ET AL.

By their representatives,

LEMAIRE PATENT LAW FIRM, PLLC  
P.O. Box 11358  
ST. PAUL, MN 55111

CUSTOMER NUMBER **40064**  
TELEPHONE: 952-435-0200

Date: February 16, 2008

By: /Charles A. Lemaire/  
Charles A. Lemaire  
Reg. No. 36,198

CERTIFICATE UNDER 37 CFR 1.8(a)(1)(i)(C) (paragraph C being a new amendment to Section 1.8 published in the Federal Register, Vol. 72, No. 14, page 2773); I hereby certify that this document is being electronically filed via the U.S. Patent Office's EFS filing system on this **16<sup>th</sup> day of February, 2008, Central Time**, addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By: /Charles A. Lemaire/  
Charles A. Lemaire, Reg. No. 36,198